Name _____

Race Car of Refracting Light
Pre-Session: Activity Sheet Four

Okay, so a pencil changes shape when placed in water. Let's drop the magic and see how scientist explain how light refracts. Refracts means that the light bends when it goes through transparent or some translucent materials.

This bending causes the object to look different. The curved surface of the lens causes the light to spread out if the lens or surface is concave. It causes the light to bend in and enlarge if the lens or surface is convex.

Let's see if a plastic car, a piece of wood, and a piece of cloth helps you picture what happens to light when it travels through different materials.

Step One: Place a plastic car on the middle of an incline smooth board. Let go of the car. How does it travel down the board?

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Step Two: This time increase the degree of the incline board. How did this change what the car did?

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Step Three: This time before you let the car go lay a towel down smoothly on the end of the board. Lift the board to the same two angles and see what the car does differently. Record your results.

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Has this happen to you?

**Have you ever raced a pull back kids meal toy backwards and watched it travel from a smooth surface onto a carpeted area? What did the car do?

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** Have you ever ridden your bike from the smooth sidewalk though a sandy playground area? What did the bike do?

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** Have you ever roller-skated off the sidewalk onto the grass? What happen to the direction you were traveling?

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Each time whether it was with the pull back toy, your bike or roller-skates, the object curved or bent directions when it went onto a new surface. Light is like this too! When light travels through a different material it bends. This is called **refraction**.

The direction it refracts or bend depends on the direction the curved surface of the lens or transparent object bends. A concave surface causes the light to get smaller and spread out while convex surfaces enlarge and focus inward.

SO…….

What caused the pencil to get larger? Explain your idea in two or three sentences.

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